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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER	
THANGAVELU, KANDASAMY	
ART UNIT	**PAPER NUMBER**
2123	

DATE MAILED: 10/04/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/888,189	KRISHNAN, SIVARAM	
	Examiner	Art Unit	
	Kandasamy Thangavelu	2123	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *21 June 2001*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-16* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-16* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *21 June 2001* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. Claims 1-16 of the application have been examined.

Drawings

2. The drawings submitted on June 21, 2001 are accepted.

Claim Objections

3. The following is a quotation of 37 C.F.R § 1.75 (d)(1):

> The claim or claims must conform to the invention as set forth in the remainder of the specification and terms and phrases in the claims must find clear support or antecedent basis in the description so that the meaning of the terms in the claims may be ascertainable by reference to the description.

4. Claims 5 and 14 are objected to because of the following informalities:

In Claim 5, "adjusting the accuracy of the performance simulation mode for one of the at least a second portion of code" is indefinite, as it is not clear as to what the applicant meant by "one of the at least a second portion of code".

In Claim 14, "adjusting the accuracy of the performance simulation mode for one of the at least a second portion of code" is indefinite, as it is not clear as to what the applicant meant by "one of the at least a second portion of code".

Appropriate corrections are required.

Claim Interpretations

5. In Claim 5, "adjusting the accuracy of the performance simulation mode for one of the at least a second portion of code" is interpreted as "adjusting the accuracy of the performance simulation mode for one portion of the at least a second portion of code".

In Claim 14, "adjusting the accuracy of the performance simulation mode for one of the at least a second portion of code" is interpreted as "adjusting the accuracy of the performance simulation mode for one portion of the at least a second portion of code".

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in-
> (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effect under this subsection of a national application published under section 122(b) only if the international application designating the United States was published under Article 21(2)(a) of such treaty in the English language; or
> (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that a patent shall not be deemed filed in the United States for the purposes of this subsection based on the filing of an international application filed under the treaty defined in section 351(a).

7. Claims 1, 3, 8, 9, 10 and 12 are rejected under 35 U.S.C. § 102(e) as being anticipated by **McNamara et al.** (U.S. Patent 6,687,662).

7.1 **McNamara et al.** teaches system and method for automated design verification. Specifically, as per claim 10, **McNamara et al.** teaches a system for simulating the performance of a system (Abstract, L1-2; CL1, L12-16;); the system comprising:

a module for performing simulation in a first simulation mode for at least a first portion of code that models at least a portion of the system (CL5, L22-50; Abstract, L1-8); and

a module for performing simulation in a second simulation mode for at least a second portion of code that models at least a portion of the system (CL5, L51-61; CL5, L64 to CL6, L11; Abstract, L1-8).

Per claim 12: **McNamara et al.** teaches that the different modes can be invoked within a single simulation program execution run (CL6, L64 to CL7, L41).

7.2 As per Claims 1 and 3, these are rejected based on the same reasoning as Claims 10 and 12 supra. Claims 1 and 3 are method claims reciting the same limitations as Claims 10 and 12, as taught throughout by **McNamara et al.**

Per claim 8: **McNamara et al.** teaches that the first portion of code is the same portion of code as the second portion of code during distinct simulation program execution runs (CL6, L64 to CL7, L41).

Per claim 9: **McNamara et al.** teaches that wherein the first portion of code is the same portion of code as the second portion of code during a single simulation program execution run (CL6, L64 to CL7, L41).

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains.

9. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

10. Claims 2, 4, 7, 11, 13 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over **McNamara et al.** (U.S. Patent 6,687,662) in view of **Yoshino et al.** (U.S. Patent 6,507,809).

10.1. As per claim 11, **McNamara et al.** teaches the system of claim 10. **McNamara et al.** teaches that the first simulation mode is a functional simulation mode (CL5, L22-50).

McNamara et al. teaches cycle accurate simulation which is done on a cycle-by-cycle basis (CL5, L64 to CL6, L11). **McNamara et al.** does not expressly teach that second simulation mode is a performance simulation mode. **Yoshino et al.** teaches that second simulation mode is a performance simulation mode (CL1, L6-12; CL1, L33-40; CL1, L49-53), because in performance simulation, the simulation proceeds based on the clock cycle and the performance of the system is evaluated every machine cycle on the basis of hardware event that occurs (CL1, L49-53); and the performance simulation allows determining the time required to execute a given program, the hit rate of the cache, the load latency of memory etc. (CL1, L33-40). It would have been obvious to one of ordinary skill in the art at the time of Applicants' invention to modify the system of **McNamara et al.** with the system of **Yoshino et al.** that included second simulation mode being a performance simulation mode. The artisan would have been motivated because in performance simulation, the simulation would proceed based on the clock cycle and the performance of the system would be evaluated every machine cycle on the basis of hardware event that occurred; and the performance simulation would allow determining the time required to execute a given program, the hit rate of the cache, the load latency of memory etc.

Per claim 13: **McNamara et al.** teaches that the module for performing functional simulation predicts behavior of the at least a portion of the system without regard to execution time (CL5, L22-58).

Per claim 16: **McNamara et al.** teaches that the functional simulation mode is a subset of the performance simulation mod (CL6, L64 to CL7, L41).

10.2 As per Claims 2, 4 and 7, these are rejected based on the same reasoning as Claims 11, 13 and 16 supra. Claims 2, 4 and 7 are method claims reciting the same limitations as Claims 11, 13 and 16, as taught throughout by **McNamara et al.** and **Yoshino et al.**

11. Claims 5, 6, 14 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over **McNamara et al.** (U.S. Patent 6,687,662) in view of **Yoshino et al.** (U.S. Patent 6,507,809), and further in view of **Hellestrand et al.** (U.S. Patent 6,230,114).

11.1 As per claim 14, **McNamara et al.** and **Yoshino et al.** teach the system of claim 11. **McNamara et al.** does not expressly teach a module for facilitating adjustment of accuracy of the performance simulation mode for one of the at least a second portion of code. **Hellestrand et al.** teaches a module for facilitating adjustment of accuracy of the performance simulation mode for one of the at least a second portion of code (CL35, L18-20; CL35, L29-30; CL35, L27-45; CL35, L63 to CL36, L29), because accuracy of performance simulation affects the speed of execution of simulation and the accuracy of the simulation results (CL35, L18-20; CL36, L15-16). It would have been obvious to one of ordinary skill in the art at the time of Applicants' invention to modify the system of **McNamara et al.** with the system of **Hellestrand et al.** that included a module for facilitating adjustment of accuracy of the performance simulation mode

for one of the at least a second portion of code. The artisan would have been motivated because accuracy of performance simulation would affect the speed of execution of simulation and the accuracy of the simulation results.

11.2 As per claim 15, **McNamara et al.** and **Yoshino et al.** teach the system of claim 11. **McNamara et al.** does not expressly teach a module for facilitating the adjustment of accuracy of the performance simulation mode for at least two portions of the at least a second portion of code independently. **Hellestrand et al.** teaches a module for facilitating the adjustment of accuracy of the performance simulation mode for at least two portions of the at least a second portion of code independently (CL35, L18-20; CL35, L29-30; CL35, L27-45; CL35, L63 to CL36, L29), because accuracy of performance simulation affects the speed of execution of simulation and the accuracy of the simulation results (CL35, L18-20; CL36, L15-16). It would have been obvious to one of ordinary skill in the art at the time of Applicants' invention to modify the system of **McNamara et al.** with the system of **Hellestrand et al.** that included a module for facilitating the adjustment of accuracy of the performance simulation mode for at least two portions of the at least a second portion of code independently. The artisan would have been motivated because accuracy of performance simulation would affect the speed of execution of simulation and the accuracy of the simulation results.

11.3 As per Claims 5 and 6, these are rejected based on the same reasoning as Claims 14 and 15 supra. Claims 5 and 6 are method claims reciting the same limitations as Claims 14 and 15, as taught throughout by **McNamara et al., Yoshino et al.** and **Hellestrand et al.**

Conclusion

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dr. Kandasamy Thangavelu whose telephone number is 703-305-0043, till October 27, 2004 and 571-272-3717 after October 27, 2004. The examiner can normally be reached on Monday through Friday from 8:00 AM to 5:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kevin Teska, can be reached on (703) 305-9704, till October 27, 2004 and 571-272-3716 after October 27, 2004. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-9600.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should

you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

K. Thangavelu
Art Unit 2123
September 27, 2004

KEVIN J. TESKA
SUPERVISORY
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